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"Cogito ergo sum et sentio ergo sum": Philosophical Reflections on Contemporary Education

[„Cogito ergo sum et sentio ergo sum”: filozoficzne refleksje o nowoczesnej edukacji]

Streszczenie: Artykuł jest poświęcony kwestii edukacji i uczeniu się w formule online. W Oświeceniu akcentowano rozum i wymagano rozwoju samowiedzy, ewolucji samoświadomości jednostki i społeczeństwa, począwszy od *cogito* jako centralnej pozycji w praktyce edukacyjnej. Pojawienie się natomiast w najnowszych czasach edukacji online staje się okazją do przyjrzenia się przemianom w tej dziedzinie, a także nowym możliwościom. Autorki stwierdzają, że klasyczna teoria edukacji wymaga obecnie dostosowania, a nawet istotnej zmiany. W nowym paradygmacie edukacji (paradygmacie rozumienia) konieczne jest uwzględnienie heurystyki ciała i harmonijnego połączenia stanowisk filozoficznych wyrażanych formułami *Cogito ergo sum* i *Sentio ergo sum*. Zdaniem autorek jest to fundamentalne stanowisko zrozumienia racjonalności po Oświeceniu. Nowe teorie pedagogiczne opierają się na fundamencie uwzględniającym nie tylko tradycyjne *cogito* (*myśle*), ale także konceptualne i filozoficzne podstawy teorii poznania cielesnego. Opierając się na współczesnych badaniach nad ewolucją człowieka, autorki stawiają tezę, że w edukacji należy uwzględniać znajomość morfologii człowieka i brać pod uwagę ciągly proces koewolucji ciała, środowiska i umysłu (świadomości), ponieważ ludzkie percepcje i działania współdziałają ze sobą. Według autorek prawdziwość postawionej tezy potwierdza obecny rozwój programów HCI (*Human-Computer Interaction Programs*), ponieważ dzięki temu wprowadzone zostały do cyberprzestrzeni doznania, do których zdolna jest jedynie heurystyka fizyczna. Dzięki tego typu programom ulepszone zostały praktyki edukacyjne, które stały się bardziej skuteczne i różnicowane metodologicznie.

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Summary: The focus of today's discussion is on education and the application of online learning. The ideology of the Enlightenment emphasized the mind and required the development of self-knowledge and self-awareness of the individual, starting from *Cogito* as a central position in educational practice. Online education has provided an opportunity to look at the transformations in it from broader perspectives and to speak about the urgent necessity of the adjustment of the classical theory of education or even significant changes in it. A new paradigm of education (paradigm of understanding) is impossible without taking into account the heuristics of the corporeal and the harmonious combination of philosophical positions – *Cogito ergo sum* and *Sciento ergo sum*. This is a fundamental position for understanding the rationality of the Post-Enlightenment. The new pedagogical theories are based on a foundation that takes into account not only the traditional *Cogito* (I think), but also the conceptual and philosophical foundations of the theory of bodily cognition. Contexts of modern scientific research on human evolution allow us to put forward the thesis of the urgency of forming a very complex methodology, which should be based on knowledge of human morphology and take into account the constant process of coevolution of body, environment and mind (consciousness), because human perceptions and actions are improved due to their harmonious interaction. This thesis is reinforced by the development of HCI (Human-Computer Interaction Programs), because they focus on the introduction of those sensations into cyberspace, which can only be bodily heuristics, that can improve and make educational practices more successful and methodologically diverse.

Słowa kluczowe: człowiek; nauka; edukacja; e-edukacja; racjonalność; racjonalność cielesna; fenomenologia; słowo; gest; ciało.

Keywords: human being; science; education; e-education; rationality; embodied rationality; phenomenology; word; gesture; body.

Introduction

The issue of new pedagogical theories must be considered on the basis of understanding the rationality of the Post-Enlightenment along with discussing the limitations of the slogan *Cogito ergo sum*. It is proposed to consider and analyze the methodology of the new generation, turning to embodied rationality and basing on the thesis that cognition and the creation of meaning are mediated and formed through bodily interactions with the environment. Focusing on embodied rationality raises the issue of new heuristics, requires the activation of innovative (technical and technological in nature) aspects in the organization of formats, especially in e-learning and educational practices of a distance nature. The substantiation of new conditions for the existence of education, its new forms and pedagogical theories requires the deployment of a new map of pedagogical reason and rationality, which leads to a very complex methodology. The latter should be based on the knowledge of human morphology and take into ac-

count the constant process of coevolution of body, environment and mind (consciousness), based on the possibility of using new technical and technological capabilities.

Any pedagogical theory is based on the assumption that people act as ideal rational persons, and decision-making is the result of the work of the mind. The contexts and nature of the study of this principle were very diverse: from the idea of the university to the methodology of educational processes, from issues of technological equipment of laboratories (i.e. issues of high technology) to didactic foundations and structuring the content components of disciplines. The names of those who raised them are part of the treasury of world philosophical thought (M. Boichenko, D. Clark, S. Downes, O. Gomilko, D. Gruntkowska, M. Kultaieva, J. Moroz, R.D. Precht, G. Siemens, etc.).

Education, which has always been regarded as a traditionally unshakable form of public life, has recently been under discussion in almost every country in the world. The crisis situation in the world caused by the coronavirus pandemic and the increased use of online training became the impetus for it (Możgin W., 2020; Myronenko R., 2020). In our opinion, all the problematic issues push us to claim that the classical theory of education needs adjustment or even significant transformations, based on the contexts of modern scientific research on human evolution. It will allow us to look at the problem from a new perspective.

Modern Philosophy and Science about the Role of Embodied Rationality

The educational dimension of rationality is moving to a new stage of discussion and recommendations. The evidence of this is the issue of "methodological hunger", which has been raised not only by scientists, educators, teachers but also by dissatisfied parents, schoolchildren, and students. In our view, the first question that should be asked is: what influence do philosophical and psychological concepts have on theories of learning (meaning the basic ones that exist), and what are the current scientific studies that may indirectly or directly indicate changes that need to be addressed on the way to developing new methodological capabilities. These questions will be the basis for the unfolding of the theme of reason and rationality in new contexts. And as paradoxical as it may sound, it is the interest in distance education that has become one of the impetus for the actualization of the question: what does it mean to be rational?

After analyzing all the active pedagogical theories today, we distinguish the following: cognitivism, constructivism, and connectivism. Any theory is formed under the influence of psychological concepts associated with the search for new heuristic possibilities of the theory of knowledge. Cognitivism was developed on the basis of psychological concepts of cognition and focused on memory, motivation, thinking, and the formation of thinking. That is, the emphasis was placed on learning as an internal process, and the attention was paid to the quantity and quality of learning.

The issue of constructivism in education acquires special emphasis, one of which is “whether it is possible to leave constructivism in the territory of past anthropological landmarks, or to focus on a new anthropological approach” (Dolska O., Gorodiskaya O., Tararoyev J., 2019, p. 106). According to Donald Clark, this approach emphasizes the importance of the process of knowledge transfer to the student, which should create a personal learning environment for everyone, and the stress is on the process of constructing such an environment (Clark D., 2002; Clark D., 2011). The discussion of the approach has already started on the pages of journals. Polish scholars, for instance, believe that the constructivist approach in education remains one of the leading ones. Working on the topic of constructivism, professors at the University of Szczecin believe that the understanding of the pedagogical mind closely intersects with the understanding of the phenomenon of communication, so the emphasis in constructivism should be placed on language discourse. “Lack of knowledge about the complex mechanisms of communication processes leads to the fact that a daily contact, largely verbal, marked by contextual elements, can lead to an ambiguous communicative state in creating a learning space” (Moroz J., 2020, p. 55). But the attitude to constructivism remains ambiguous, that is proved by professor O. Goncharenko’s words: “Since constructivism is an interdisciplinary project, the didactics, which can be based on it, requires a combination of ideas in its proposals of different scientific directions: from philosophy to the theory of communication” (Goncharenko O., 2017, p. 163–164).

In our opinion, the constructivist approach or its elements should be present in all forms of teaching/learning, because they affect the information selected by the teacher, that results, in turn, in “creating” variability in the nature of forms of learning, their selection and constant movement in transformations that didactics itself needs. If we are talking about E-learning, then in this case it is generally mandatory.

The developers of connectivism (George Siemens and Steven Downs) believe that education must move into new conditions of existence, and such approaches as behaviorism, cognitivism, constructivism, which were

developed in the "pre-technological" era, do not fully correspond to the changes that are already becoming a reality today. At the heart of the approach is the thesis that knowledge is objective and achievable through thinking and experience (Downes S., 2010; Siemens G., 2005). Connectivism was caused by the questions as follows: "Should the learning process change? How should didactics move in this direction? How should the latest technologies affect learning processes taking into account high technology and the formation of educational E-environment?" (Dolska O., 2018).

Recently, different sciences have made it possible to look at the problem of rationality in education from new perspectives: cognitive research, psychological concepts, research in biology and genetics, etc. have become relevant (Svyrydenko D., Yatsenko O., 2019). They provide an opportunity to expand our horizons of understanding the process of cognition. For example, Jakob von Uexküll's statements about the connection between the environment and the body were recently rediscovered and formed the basis of a new paradigm of wildlife movement (Kull, 2001). Jakob von Uexküll developed an original and very operational theory of meaning, widely known as *Umweltlehre*, which primarily deals with the interaction of a living organism with the environment (Uexküll J.B., Kriszat G., 1956). The focus is on the principle of co-evolutionary development, which combines modern scientific findings in theoretical biology, evolutionary epistemology, cognitive science, phenomenology, neuroscience, neurophilosophy, evolutionary psychology, dynamic systems theory, artificial intelligence theory, etc. (Knyazeva H., 2018). Recent studies in these are grounded on explaining the cognitive and vital activity of all living beings in terms of understanding the natural organization of the body in combination with the natural environment. These investigations are grounded on F. Varela's studies according to which the formation of meaning requires consideration of the body characteristics (Varela F.J., Thompson E., Rosch E., 1991), H. Maturana, the supporter of Varela's idea of coevolutionary development (Maturana H.R., Varela F.J., 1987), E. Thompson, Varela's follower (Thompson E., 2004).

The main idea underlying theoretical and practical research is as follows: the organism perceives the world through a network of «functional relations», organisms are "involved" in coevolutionary processes, the world is formed by coevolution. Such studies give us a mandatory apparatus, terminology for describing the process of interaction of the organism with the environment; finally, they give an idea of the cybernetic characteristics of human being and fit organically into modern processes of artificial devices, emphasizing the formation of individuation.

We recall that at one time it was philosophy that raised the question of the role and significance of the corporeal. The studies of modern phenomenology, the roots of which we find in the philosophy of E. Husserl, M. Heidegger, M. Merleau-Ponty, and B. Waldenfels, have expanded the epistemological foundations of human experience. Consciousness arises from the experience of dealing with things, and the attitude to things without understanding the participation of the corporeal can not be imagined. It is important for us to draw a preliminary small conclusion: if during the Enlightenment rationality was extracorporeal (in the epistemological sense), then due to phenomenology the transition to the “corporeal mind” became a reality, because the fact that it is the body that reveals different dimensions of experience was established in the course of studies. Phenomenology has developed tools for describing corporeality and has made it one of the main areas of intellectual research. The statement “I not only have a body, I am this body” most accurately explains the understanding of the phenomenological narrative. And it should be emphasized that since the phenomenology of E. Husserl or even M. Merleau-Ponty, who followed his teacher and his grandiose project, sought new ways of discussing the body, this applied to both well-studied areas and hitherto unknown ones. The Polish philosopher M. Murawska writes that this was a kind of radicalism, which Paul Ricoeur tentatively defined as a “heretical” process (Ricoeur P., 1986). We agree that phenomenology can no longer be in the form in which it was conceived by E. Husserl. Today “phenomenology reconsiders long-established and outdated ideas, allowing them to approach and reflect reality anew” (Murawska M., 2020, p. 31–32). M. Murawska proposes to use the term *post-phenomenology* in relation to its modern narrative.

Non-classical epistemology also creates a kind of theoretical and practical basis, the heuristic potential of which unfolds around the theme of human behavior and provides a basis for describing the meaning of the corporeal not only as human existence but also in obtaining knowledge through bodily capabilities. The mind-body opposition, which suggested that they be divided into two polar locations, was reconsidered and the unscientific nature of such a rigid separation was confirmed. Such studies date back to the Post-Enlightenment, and they aimed to study the role of corporeal processes of cognition: namely, the influence of the body on the whole process of cognition, which is the ground for an expanded understanding of not only the corporeal but also embodied rationality that goes beyond the usual affects and actions inherent in judgment. The description of embodied rationality appeared at the turn of the 20th and 21st centuries, and at present more and more often we are talking about the appeal to it in all spheres of human life. In our opinion, this idea cannot be

ignored in education, because the pedagogical mind can also pay attention to this powerful turn in heuristics. No wonder R.D. Precht, advocating the formation of interdisciplinary syntheses between theoretical pedagogy, neurobiology, psychology and philosophy, openly criticizes the modern school with its didactic concept. He believes that the school activities should be based on a new anti-dogmatic philosophical pedagogy, and this will allow the school to have a completely different organization of space and time: "One of the most important achievements in the study of learning processes is the recognition of the direct connection between learning and body movement" (Precht R.D., 2013, p. 206). Precht's appeal to methodological receptions reveals "possible risks, prospects, and... prevention of negative previous mistakes" (Precht R.D., 2013, p. 206).

Phenomenology has revealed the meaning of the corporeal, and post-phenomenology, which reveals its internal tension, cracks and ruptures, attracts us to a new in-depth understanding of the meaning of the body and the corporeal. Under the influence of the corporeal, there is a growing understanding that bodily experience, especially when it comes to the performance of the body, is important for teaching: "Any action / performance acts as a design / creation of reality (which the teacher needs now). We evaluate this process as a technology of the process of development and creation of reality. As a result, before us there is constructive activity and development of knowledge in the form of technologies ("knowledge how"). Namely, being, constructed according to such knowledge, acts as the «ultimate reality" (Dolska O., 2020, p. 94).

Now, dealing with distance learning, we have unfolded a map of didactics of the future. The corporeal reminds us that much of the learning grows out of the experience we receive through the body. We understand that bodily experience and most of our experiences are bodily realizations and are building blocks for general heuristics. If we take, for example, only the metaphor of "caring for the body", which has acquired a fundamental position in phenomenology, then, based on M. Heidegger, P. Ricœur, M. Foucault, O. Bolnov, and others, its application in education intersects with educational practice. And if the culture of the body begins with the ordinary, everyday and then rises to the level of socially significant, the priority and rehabilitation of the effects of sensory, intuitive and so on become clear. As an example, we quote the famous Ukrainian phenomenologist O. Gomilko. She writes that "a human is such a living (corporeal) substance that has the resource of reason. That is why their mind is an embodied essence, and the body is potentially intelligent" (Gomilko O., 2020, p. 268). It emphasizes the revision of our experience, perception of ourselves and culture through the prism of the corporeal.

The position of the new attitude to the heuristics of the corporeal is confirmed in psychological concepts (what is relevant to our investigation is the findings of cognitive psychology about thinking and memory, the findings of social psychology, in which our attention is drawn by a new assessment of a social play with the body, attitude to the body, etc.), which in combination with the data of neurobiology, provide in-depth material for addressing issues of didactics and open a wide range of conclusions.

In reasoning about the role of the corporeal in heuristics, two general lines emerge. The first line focused on the problem of forming meanings due to the interaction of the bodily possibilities with the surrounding world (reality), and it has become active in recent decades. We are familiar with the research of J. Gibson (Gibson J., 2015), who suggests that the environment can be seen as a formative reproduction of cognition of the “lower level”, and bodily cognition, which influences the formation of cognition of conceptual relations, is reproduced already at a “higher level”. Gibson studied the lower-level cognition, but the interaction between the human body and the environment had already been illustrated by him. The second line unfolded in the context of cognitive science, in particular in neurolinguistics. It is necessary to recall that J. Lakoff and M. Johnson (Lakoff G., Johnson M., 1999) based their theory on the conclusion that metaphors are not limited to poetry, they have a conceptual nature; metaphorical reflections are characterized by systematicity; metaphors are not produced, but depend on our bodily experience (Dolska, Karazina, 2021). But the German expert A. Hölzl, studying the foundations of cognitive linguistics, drew attention to three representatives of Gestalt psychology, who had come to similar conclusions much earlier before (Hölzl A., 2020). The first one is S. Asch, who ironically declared that «only we do not know that we all speak in verse» in the 1950s (Asch S.E., 1961). Another psychologist was K. Lewin, who proposed a topological model of the image, which also began to be discussed 20–30 years later (Lewin K., 1936). Finally, R. Arnheim wrote in his book “Visual Thinking”, in which there are many ideas about understanding perception, scanning, mixing, construction, that visual reproduction is visual thinking (Arnheim R., 1969). In their studies, they foresaw the main topics of cognitive linguistics for several years.

This connection between mind and body is not reflected in the typical view of human rationality, but all our previous and subsequent investigations demonstrate that scientific findings suggest not only that body and mind have evolved, but also emphasize their common evolution, the co-evolutionary nature of this process. In the early 2000s, the topic of the competency-based approach in learning/teaching was hotly debated. Later, on its

basis, a new paradigm of education was formed – the paradigm of understanding (where the focus is not on fixing the fact, but on understanding it); and features of the competency-based approach were actively discussed (Dolskaja O.A., Golozubov A.V., Gorodiskaya O.N., 2016). The main characteristic feature of the approach is the formation of an active model of learning with the ability to construct the content of the educational process in accordance with the requests of the education customer (state, employer, business) on the basis of interdisciplinary learning (we are talking about the activation of the interdisciplinary integrative model of learning) with an emphasis on the import of science into education, and on self-teaching (Dolskaja O.A., Golozubov A.V., Gorodiskaya O.N., 2016, p. 43–44). But the main factor influencing the thriving of the paradigm of understanding was the influence of post-phenomenology with an emphasis on understanding the cognitive capabilities of the body. This is a kind of new stage not only of the paradigm of education, but a stage of a new civilizational leap. Sensations, imagination, games with imagination, improvisation on the basis of imagination, a new sense of intuition and its meaning, etc. give the opportunity to activate the saying *Sentio ergo sum!* In our view, the paradigm of understanding will unfold its implementation only through a combination of two (opposition positions, in the tradition of Enlightenment philosophy) statements: *Cogito ergo sum – Sentio ergo sum.*

The process of research and discussion of the cognitive capabilities of the corporeal intensified the appeal to embodied rationality, and the COVID-19 pandemic period, not surprisingly, shifted this topic and moved to different areas of human life (Dolskaja O., 2020). We are sure that the topic of embodied rationality in education is just beginning to reveal itself and will gain momentum. Addressing it as a methodological basis is also already a reality. An example is a thorough work in the field of jurisprudence and economics of specialists such as B.A. Spellman and S. Schnall (Spellman B.A., Schnall S., 2009). The authors describe in detail a fundamentally new approach to understanding human cognitive abilities, exploring the role of embodied rationality: "the verbal overestimation reflects the intuition that the body will need certain resources when attempting the specific action" (Spellman B.A., Schnall S., 2009). Emphasizing that the cognitive process obtains the status of «rational» under the condition of serving goals and adaptive actions, they are based on modern psychological theories, which argue that mental processes are based on real states of the body.

Thus, the focus on embodied rationality can influence the methodology and can be imported, for example, into a constructivist approach, can complement not only the organization of verbal communication but also

strengthen the communicative act through bodily capabilities, namely, communication gestures, movements. A word or a gesture? Losing the status of rhetorical, this question turns into a functional-practical principle of the new didactics. And this is evidence that it is time to form a very complex methodology, which should be based on knowledge of human morphology, focus on postphenomenology, postclassical epistemology, evolutionary psychology, cognitive sciences.

The Grounds of Future Trajectories of Educational Didactics

All organisms' activity is entirely focused on the outside world. This is provided by the genetic program, instincts, conditions of adaptation to the environment. And all these components are adjusted to their natural forms of their corporeality and the surrounding reality. Man continues this tradition and genetic necessity: the horizons of the mind are tied to the corporeal and limited by the biological, earthly way of its existence. It is difficult to imagine a consciousness detached from the corporeal (we do not mean the idea of creating a non-biological mind, transhumanism, etc.). We would like to refer to M. Kaku's work *The Future of the Mind*, in which he reflects on the postbiological era and gives shocking, even in his opinion, predictions, and prospects for acquaintance with it. He believes that "In fact, if the aliens are thousands of years ahead of us, chances are that they have abandoned their biological bodies eons ago to create the most efficient computational body: a planet whose entire surface is completely covered with computers" (Kaku M., 2014, p. 381). In support of his findings, he relies on a conversation with Dr. P. Davis (a professor at the University of Arizona), who has a hypothesis for the future. According to him, aliens are not interested in our civilization at all, because "any civilization that advanced would also have developed virtual realities far more interesting and challenging than reality. The virtual reality of today would be a children's toy compared to the virtual reality of a civilization thousands of years more advanced than us" (Kaku M., 2014, p. 382). A very unusual version of extraterrestrial life brings us close to the topic of virtual life and to issues around education in e-format, learning in e-mode.

At one time, it was argued that symbolically mediated cognitive processes require the context of tacit and informal background knowledge against which they become meaningful, and that because much human knowledge is not formalized, calculations alone cannot take into account human level intelligence. This statement related to the well-known experiment called "The Chinese Room Argument" (commonly known as John

Searle's thought experiment), which showed that although the computation based on the rules was sufficient to pass the Turing test, it was not enough to describe human understanding, thus revealing some shortcomings of computer technology as the implementation of the process of cognition at the human level. This issue began to be addressed by those who returned to the subject of embodied cognition.

Recently, the findings of specialists in the field of artificial intelligence, computer science, sonication, human-computer interaction, which emphasize the role of embodied cognition based on the conceptual content of internal experience, have become especially widespread. The studies have taken place primarily in the context of visual media, but they are also important for the design of auditory displays and interactive systems in which sounds play a dominant role, opening new opportunities for transmitting information to the listener (Roddy S., Bridges B., 2019).

It is relevant to remind you here that at one time (in the early 2000s), when it came to the implementation of distance learning, one of the ideologues of distance learning D. Clark raised the issue of teaching didactics, namely methods of communicating knowledge, about theory and practice, which focus on the old forms of knowledge transfer. He raises the question of the myths of E-learning and asks the question: what is it – E-learning – is it more effective or just accelerated, can e-learning help with the necessary knowledge? Should training be mass or distributed, i.e. immediately or in parts? (Clark D., 2002).

And today we see that scientists emphasize issues of a different nature and try to maximize the possibility of reproduction of bodily states on the scale of intersystems. Any mental operations are correlated with a student's emotional intelligence and bodily state, and the devices through which we turn to distance learning, are already beginning to remind us of the shortcomings of an overly rational approach (in the Cartesian tradition).

Information culture is evolving at a rapid pace, embodied rationality is already being used in high technology (as evidenced by the example of the Human-Computer Interaction (HCI) Program, this multidisciplinary field focuses on computer technology development and, in particular, on the interaction between people (users) and computers. HCI includes methodologies and knowledge of cognitive science, philosophy, and epistemology. To illustrate this, we want to say about S. Roddy and B. Bridges (Roddy S., Bridges B., 2018), specialists in the field of music (computer music, music theory), who promote innovations in audio engineering and computer practice based on the findings of A.M. Glenberg and D.A. Robertson (Glenberg A.M., Robertson D.A., 2000); R. Brooks (Brooks R., 2008), P. Dourish (Dourish P., 2004), Larson (Larson S., 2012), M. Leman (Leman M., 2007) etc.

The turn towards the sensual (*Sentio ergo sum*), in our opinion, has already happened. We need to find a compromise between *Cogito* and *Sentio*. At the same time, we underline that skills that contribute to critical thinking cannot be lost. Moreover, in the development of information and digital society, it is necessary to focus on the formation of a new type of thinking – systemic thinking (Dolskaja O.A., Golozubov A.V., Gorodiskaya O.N., 2016, p. 76). The relevance of the latter is confirmed again by the development of information networks (often little controlled), on the one hand, and the theme of “creating” a person of a new era, on the other. There is a request for a comprehensive discussion not only of the methodological basis but also of educating people of a new generation as we have already been living in a completely different culture and are dealing with new anthropology.

In conclusion, we want to refer to M. Johnson’s book *The Meaning of the Body: Aesthetics of Human Understanding*. He argues that today philosophy has been moving along a path of transformation towards a new understanding of reason and will be important for non-philosophers only if it is built on visceral (how a person feels intuitively, feels by their “gut”, based on instinct) connection with the world. M. Johnson puts forward a bold new concept of reason and demonstrates how the emotional and aesthetic aspects of meaning act as fundamental to the understanding and meaning of reason: “For at least the past three decades, scholars and researchers in many disciplines have piled up arguments and evidence for the embodiment of mind and meaning. However, the implications of this research have not entered public consciousness, and so the denial of mind/body dualism is still a highly provocative claim that most people find objectionable and even threatening. Coming to grips with your embodiment is one of the most profound philosophical tasks you will ever face. Acknowledging that every aspect of human being is grounded in specific forms of bodily engagement with an environment requires a far-reaching rethinking of who and what we are, in a way that is largely at odds with many of our inherited Western philosophical and religious traditions... Change your brain, your body or your environments in nontrivial ways, and you will change how you experience your world, what things are meaningful to you, and even who you are” (Johnson M., 2007).

Thus, the flexibility of the brain, flexibility in thinking techniques, understanding on thinking techniques becomes the task of modern education. But the severity of the situation is manifested in the fact that we sometimes (or often) still focus on the rationality of the Enlightenment, and therefore, a paradoxical situation is created in which it turns out that the optics of science are formed by various anthropological attitudes (Dol-

ska O., Gorodiskaya O., Tararoyev J., 2019, p. 118). We have seen that the topic of e-learning and the development of didactics to it is necessary in order to improve the rationality of education in terms of recourse to the corporeal.

Conclusions

The ideology of the Enlightenment emphasized the mind and required the development of self-knowledge and self-awareness of the individual, starting from Cogito as a central position in educational practice. Modern philosophy and science have shaken these norms, and the present space of education cannot be considered through the prism of the rationality of the Enlightenment. Leading researchers of embodied heuristics as the central point of their arguments argue that the mind meets the world through the human body, and therefore cognition and the creation of meaning are mediated and formed through bodily interactions with the environment. This emphasizes that in addition to the reflexive representation of the object, there is also an emotion, which in its own way represents both the body and thought.

The new paradigm of education (paradigm of understanding) is impossible without taking into account the embodied heuristics and the harmonious combination of such philosophical positions as: Cogito ergo sum and Sentio ergo sum. Such a combination should become a principle for understanding the rationality of the Post-Enlightenment. The latest pedagogical theories are based on a new foundation, which tends to grow on the conceptual and philosophical foundations of the theory of bodily cognition. They are accompanied by HCI developments because they focus on science and the empirical understanding of virtual reality users, emphasizing the study of how computer machines can improve and make our educational practices more successful and methodologically diverse. It is time to form a very complex methodology, which should be based on knowledge of human morphology and take into account the constant process of coevolution of body, environment and mind (consciousness), because perceptions and actions increase due to their harmonious interaction.

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